Title: Intermediate frequency selecting device for use in dual band cellular telephone and method thereof

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Abstract

A dual band cellular telephone includes an antenna, a power amplifier, RF transmission and reception chains, first and second local oscillators, and IF transmission and reception chains. In order to select an intermediate frequency, processing circuitry within the telephone determines center frequencies of transmission radio frequency sweep ranges of first and second bands, calculates a difference between the center frequencies of the first and second transmission bands, and multiplies the calculated difference value by a scaling coefficient to calculate a center local oscillating frequency associated with one of the RF transmission bands. It then subtracts the transmission center frequency of one of the RF transmission bands from the local oscillator center frequency to determine the transmission intermediate frequency. Preferably, the cellular telephone has a single local oscillator for transmit and a single local oscillator for receive. The IF selection method enables the same IF frequency separation between transmit and receive when operating at any frequency in the dual band system. The invention relates to a dual band (e.g.CDMA, PCS) cellular telephone which transmits and receives in first and second transmission and receiving radio frequency bands. The centre frequencies of the transmission/reception sweep ranges of the first and second bands are

determined. Then, first and second main oscillating signal frequencies are determined, being substantially the respective scaling coefficients multiplied by the difference between the centre frequencies of the transmission (or receiving) sweeping ranges of the two bands. Then the respective intermediate frequencies are determined as the difference between the frequency of the main oscillating signal and the centre frequency of the sweep range of the first band. The transmitting and receiving local oscillators.